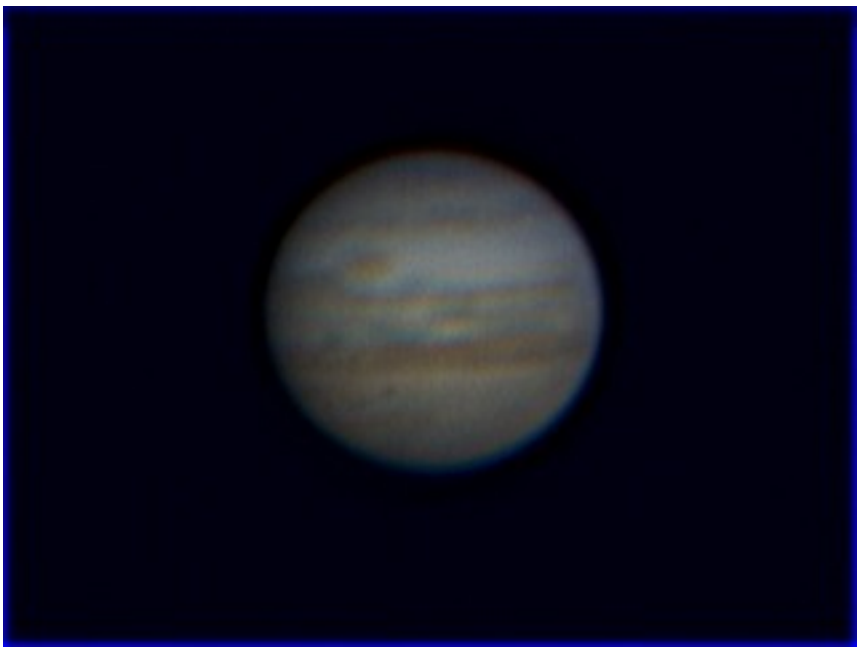
STARDUST

Newsletter of the Royal Astronomical Society of Canada
Edmonton Centre

October 2007 **Volume 53 Issue 2**



Jupiter, from Edmonton, 13 August 2007, 21:48. Photo by Murray Paulson.

Inside this Issue

RASC Edmonton Centre Contact Information

Council Positions			
President	**Krista Stefan**		
Past-president	**Orla Aaquist**		
Vice-president	**Sherry Campbell**		
General Secretary	**Luca Vanzella**		
Treasurer	**Mark MacDonald**		
Co-National Council Rep	Roy Ramdeen		
Co-National Council Rep	Patrick Earl		
Public Education Director (PED)	Orla Aaquist		
Fund Raising Coordinator	Franklin Loehde		
Councillor	Bruce McCurdy		
Councillor	Andrew Soon		
Councillor	Sheldon Helbert		
Councillor	Harris Christian		
Councillor	Ross Sinclair		
Internal Communications Officer	Michael Ward		
Observers' Group Director	Paul Campbell		
Membership Secretary	Massimo Torri		
New Member Advisor	Pat Abbott		
Appointed Officers			
Editor	Michael Ward		
Web Site Coordinator	Howard Gibbins		
Library Coordinator	Roxy Welter		
Equipment Coordinator	Bob Jahrig		

Mailing address	RASC Edmonton Centre c/o Telus World of Science 11212 – 142 St Edmonton, AB, Canada, TM5 4A1
CentreWebsite	http://www.edmontonrasc.com
Observing Deck	452-9100 ext 2249
Stardust	Articles for Stardust may be submitted by email to **mward@interbaun.com**. Submission deadline is the last day of the previous month (e.g. for the May issue submit by 30 Apr). Submit as **MSOffice 2003 or earlier** (NOT MS xml/docx please) or **OpenOffice** OR **AbiWord** OR **plain text**. Please avoid use of fancy formatting, odd spacing, and strange fonts. Graphics (photographs, illustrations) should be submitted as separate files, and clearly identified.

Upcoming Events, Meetings, Deadlines, Announcements

Regular Meetings and Events

Oct 15	7:30	Regular Meeting; expenditure proposal deadline
Nov 12	7:30	Regular Meeting
Dec 10	7:30	Regular Meeting

Council Meetings

Oct 29	7:30	1st pass at proposals
Nov 26	7:30	2nd pass at proposals

Observing Schedule Oct 12-13 Nov 9-10 Dec 7-8

Centre Casino January 3rd & 4th, 2008 - YOU ARE WANTED!

The bountiful benefits we have received from use of casino funds can be seen everywhere around us.

A trip through the Observing Deck at the TWOEs will reveal the great number and variety of telescopes and auxiliary equipment that our members can use and with which the general public is provided an opportunity to see what we are excited about in the heavens. We put them there! In the Edmonton Public Library we can see new astronomical books for the general public that have been provided by our Centre.

Most of the costs of running our club are largely covered with casino money since we do such an admirable job of "bringing the gospel of the skies" to so many Albertans and visitors from afar. Virtually all of our activities that require 'outlay' of monies on our part is covered by the casino profits.

We can thank the dedicated volunteers to our previous casinos for all these benefits but another opportunity to continue this great work occurs in January. Here is your chance to help.

On **Thursday and Friday, January 3rd and 4th 2008** we will need **cashiers**, **bankers**, **chip runners**, **count-room workers** and **general managers** for a LIGHT workout that will bring dividends to ALL of our members and, of course, the 'insatiable-for-the-wonders-of-the-skies' general public. You too can help!

The Volunteer Forms are available at the October meeting and also on the RASC Centre web site at

http://www.edmontonrasc.com/download/RASC_Volunteer_FORM_2007.pdf

We would appreciate receiving them as soon as possible. Thanks for your help.

Franklin Loehde, Casino Chair, 477-8881

President's Report *by Krista Stefan*

I'd like to start off with an apology. In the September *Stardust* and at the September regular meeting I was supposed to remind the membership that the October meeting was the deadline for submissions for the fall round of expenditure proposals. It completely slipped my mind last month. In order to allow members to still submit proposals, the deadline has been extended to **Friday October 19, 2007**. Proposals may be sent via e-mail to Roy Ramdeen <deepsky1@shaw.ca> or me <astrovoyageur@yahoo.ca>. The presentation of proposals to council will occur at the October 29th council meeting, which will be held at the ATA building (11010-142 St., kitty corner to TWOSE). Anyone who submits a proposal will be invited to that council meeting to present the proposal to council.

The new feature - Show and Telescope - introduced unofficially at last April's Starbust meeting and officially at the September meeting was very well received. Since there was so much interest in the segment, I'd like to continue with this. I would like to have examples of a wide range of observational instruments, including (in no particular order): reflectors, refractors, radio scopes, small scopes, big scopes, manufactured scopes, custom ordered scopes, home made scopes, binoculars, cameras, naked eyes, remote scopes, and anything else our members use to explore the skies. Presentations should be geared towards newer members or newer observers who are just beginning to consider what observing style and instruments would best suit them. If at all possible, it would be nice for presenters to bring in the instrument they are speaking about, but pictures would be acceptable. Presenters would have 10 - 15 minutes to describe their instrument and explain why they chose it and what they like and dislike about it. I am currently compiling a list of potential presenters, so if you are interested in being added to the list please send me an e-mail letting me know what you'd like to talk about and any requirement or restrictions you might have.

With Hallowe'en approaching, there will likely be a number of members who will take the opportunity to participate in a prime opportunity for sidewalk astronomy. Setting up a scope on your driveway with a bowl of candy near at hand will give trick-or-treaters and their escorts more of a treat than they expected. A couple of things to consider, though. You might not want to leave the scope set up unattended and you might want to avoid using your best eyepiece to avoid it being smudged by sticky fingers, makeup, sparkles, etc.

I'd also like to remind the membership that the position of Social Director is still vacant. The primary duty of this position is to ensure that cookies and beverages are available for the after-meeting socialization. So the person would have to obtain the snacks, attend all of the regular meetings (or have a backup arranged), and leave the meeting a few minutes early in order to set up. There are no restrictions on the source of the snacks - certainly home-baked goods will not be expected (but I'm sure would be appreciated!), most commonly in recent years it has been grocery store cookies, but even the TWOSE café could be approached to provide cookies (they would not set them up). There is a budget for the purchase of the snacks so that any shortfall not covered by the donation cup would be covered by council. If the individual would also like to organize other social activities, that would be great but would not be expected. If you think you or someone you know might fit the bill for this position, then please let me or any other council member know!

Have a Happy Hallowe'en!

Crescents and Full Moon Photo Ops *by Alister Ling*

Last month there were three splendid opportunities to capture near full Moons low over a cityscape on the 24-26th. Luca Vanzella was there at all three, while I joined in on September 25th and 26th. We were both successful at capturing some lovely images and

sequences. Hopefully we'll show them off at the next meeting or two so you can see it in colour.

October 25th at 6:05pm the Moon will be 71 degrees Az and 3.5° Alt. From Valleyview Drive, the Telus building is 70 degrees azimuth. The next evening, 26th, the Moon will be Azimuth 56.6° Alt 1.3° at sunset,

quite low to the left of the CN Tower. Unfortunately, there will not be any direct solar reflections as the Sun is already too far south, but twilight reflections should still be nice.

On the morning of October 26 at 8:25am The Moon will be at Azimuth 291.6° Altitude 6.4° which means it will set into the Telus building as seen from the Cloverdale Hill park bench.

The current season and declination range of the Moon "conspire" to hide very young or very crescents old (within 30 hours of new) from our sight. The next decent young crescent opportunity won't be around until February! That's when the evening ecliptic stands tall relative to the horizon.

A simulated view from Valleyview Drive, October 26 near 6 pm.

Beating the Seeing – Part 1 *by Massimo Torri*

Introduction

Every time I look at the Moon through my telescopes (an 8in f/4.9 and a 10in f/4.7, both Newtonian reflectors) I am taken by surprise. The surprise comes from the fact that each observation is different. It is true that the Moon's physical appearance has not changed significantly in almost a billion years. Copernicus, one of the most recent major craters, was formed about 900 million years ago, but the interplay between mountain ranges, ridges, walls, channels, domes, craters and their shadows during a lunation, especially near the terminator, the line that separates the day and night side of the Moon, makes the Moon look always different in the eyepiece. I usually start my observing sessions spending few minutes peeking into a low power eyepiece (usually a 25mm Plössl) looking for a feature that I am not familiar with. When I locate one, I switch to a moderate power eyepiece (10mm Plössl) until I am satisfied with it. Eventually I move to high power, using a combination of eyepieces, a 2X Barlow and a 5X Powermate. The reasoning behind this procedure is that to appreciate finer details a higher magnification is required. That is true but, as I quickly learned after few lunar observations, oftentimes magnifications in excess of 200X do not allow for better views of the same features that look reasonably good at low power. The fact is that the quality of high power lunar (and planetary, I would add) views is largely determined by the amount of atmospheric turbulence at the time and place where the observation is conducted. Astronomers commonly use the term *seeing* as a replacement for air turbulence.

What is Seeing?

Light rays coming from a celestial object have to go through the Earth's atmosphere before interacting with a telescope's optics and eventually reaching your eyes. Light changes direction whenever it crosses the interface between vacuum and a medium (like air, for example). This phenomenon is called refraction. The angle between the new and the original direction is the angle of refraction and its amount is related to a parameter called the *index of refraction*, which is specific to the medium (air, in our case).

The atmosphere is not static. Air masses are always in motion caused by local differences in temperature, density and pressure. The index of refraction of air depends on these parameters. A light ray entering the atmosphere will be bent at slightly different angles as it crosses air masses of different density, temperature and pressure. Since air motion is very often turbulent, a light ray will follow a sort of a zigzag motion while traveling through the atmosphere instead of following a perfectly straight path. In addition, the zigzag motion will change continuously at a very high frequency since air temperature, pressure and density change very quickly even at the same location. The result is that light reaches different parts of the telescope's objective (or main mirror) from slightly different directions at different times, generating secondary images (*speckles*) that appear dancing around the ideal location of the object in the eyepiece:

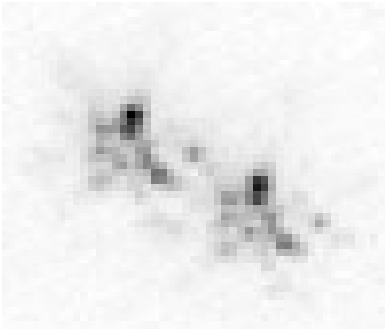


Fig. 1 (previous page) *Images of the double star Zeta Boötis: Each star should appear as a single point, but atmospheric turbulence causes the images of the two stars to break up into two patterns of speckles (http://en.wikipedia.org/wiki/Speckle_interferometry).*
Fig. 2 (below) *Because of bad seeing, features in the right frame appear blurred and distorted as compared to the same features in the left frame*

This *ideal location* would be the location of the image generated by a perfectly straight light ray. The area covered by the speckles is the *seeing disk*. When the atmosphere is very unsteady, the seeing disk is large and we experience poor seeing. Conversely, we have good seeing when the atmosphere is very steady and the seeing disk is small. At low power the seeing disk is small compared to the field of view of the eyepiece even when the seeing is bad. That's the reason why at low power views of the Moon look always impressive. As the magnification increases, the seeing disk becomes larger in relation to the field of view and the view becomes unsteady. When the power becomes too high, the optics will resolve the seeing disk itself, which looks like an ever changing blurred image of the target object. In the presence of bad seeing usable high power is not all that high. As I mentioned earlier, for my equipment the limit (in my backyard) is about 200X, never more than 300X.

Unfortunately the seeing above Edmonton and Alberta in general is rarely really good, due to the presence of the Jet Stream that, more often than not, passes right above the Province. If you are observing from a residential area you will also suffer from the presence of convective currents caused by the heat emitted by your neighbours' houses. Temporary bad seeing is caused by convective currents with the tube of your telescope that occur when the optics have not completely adapted to the outside temperature.

In the presence of bad seeing lunar and planetary views become very unsteady. Each little detail is blurred into its associated seeing disk. The result is that different portions of the features under observations expand and contract at random paces, distorting shapes and blurring details (See Fig. 2).

Lucky Imaging

The resolving power (R) of perfectly collimated optics free from optical aberrations and in the absence of atmospheric turbulence is given by the Dawes' limit:

$$R=1.02\lambda/D \qquad (1)$$

Where λ is the wavelength (colour) of the light used to conduct the observation, and D the aperture. Using a value of λ where the eye is most sensitive (5500 Å), we can recast Dawes' limit in the following formula:

$$R=4.56''/D \qquad (2)$$

Where D is measured in inches and R is measured in arcseconds. For example, when I observe using my 10in Newtonian I should be able to resolve details as close as half of an arcsecond. In practice, due to mediocre seeing, it never happens that I can see details finer than 1.5 arcseconds. That's a 300% loss! Incidentally a 0.5 arcseconds is achievable only at high-altitude locations placed on small islands, such as Mauna Kea (Hawaii) and La Palma (Canary Islands). Large optics are affected more by bad seeing than small ones. This is due to the fact that turbulence is only significant on length scales larger than 10–20 cm at visible wavelengths under the best conditions and this limits the resolution of telescopes to be about the same as given by a space-based 10–20 cm telescope.

Fortunately there is a way of drastically reducing the effects of bad seeing from astronomical observations, a technique called *Lucky Imaging*. As the name implies, this technique applies to imaging and not to visual observations. If you want to beat the seeing consistently and enjoy high-resolution views of Moon and planets that you will never see in the eyepiece you have to turn yourself into an astrophotographer. The good news is that Lucky Imaging does not require very sophisticated equipment: a good commercial webcam and freeware software is more than adequate. Lucky imaging require a high-speed camera with exposure times short enough (100 ms or less) to "freeze" the seeing and prevent blurring. The sharpest among all the recorded frames (*lucky images*) are selected and combined into a single image through careful aligning and stacking. Stacking has the effect of reducing the effect of noise, yielding much higher resolution images than would be otherwise possible. In technical terms, stacking increases the *Signal-to-Noise Ratio*, often abbreviated in *S/N*.

The next month I will outline a step-by-step procedure to apply Lucky Imaging to planetary and lunar astrophotography.

References

For a high-resolution, colour version of this article, see: http://edmontonrasc.com/download/stardust200710.pdf

New Members Report *by Pat Abbott*

Daniel Lynch was previously a member of the Ottawa Centre for 13 years. He has a 16" Dobsonian and observes from his backyard. He has been to Blackfoot but was struck by the fact that only one other member was there ! He would like to volunteer but has had trouble registering.

Kevin Plante has been interested in astronomy since he was quite young, but never followed it up until last April. He is not sure what made him do an internet search for amateur astronomy but he has been reading and learning since then. He started with some binoculars and a couple of books, and bought an 8" reflector and equatorial mount in July. He does not have a particular area of interest, but has been concentrating mostly on galaxies and globular clusters for now.

Matthew Manning has been interested in astronomy since he was quite young, but never followed it up until last April. He is not sure what made him do an internet search for amateur astronomy but he had been reading and learning since then. He started with some binoculars and a couple of books, and bought an 8" reflector and equatorial mount in July. He doesn't have a particular area of interest , but has been concentrating mostly on galaxies and globular clusters for now.

To all our new members, Cead mile failte (a hundred thousand welcomes)

Observers Report *by Paul Campbell*

Warren Finlay finally did it! We had great weather during the Northern Prairie StarFest. Let me just say this. Way to go Warren and thank you for putting on a wonderful event.

As usual I want to hear reports from you. It makes this report so much more interesting. Here are some reports from those that helped to contribute.

From **Bob Drew**

The Rain-Maker Starparty can now re-claim its real moniker - the Northern Prairie Starfest, as this year's happy registrants were treated to some fine skies! We all gotta thank Warren Finlay for his tireless work in organizing, promoting, and then running the star party! With about 60 attending, Warren's project has now reached critical mass. It has become Edmonton Centre's most important local observing event. All Centre observers should really try to support what is your event; make sure to mark next year's event in your calendar.

Thursday evening Barton Satchwell graciously invited me to dump my scope at his rented site near the cook house, near all the common activity, as I wanted to leave it untended during the day. The evening the skies just got darker and darker! With the stars almost boring at you and an ever brightening Milky Way, you knew it was gonna be a good nite. M31 was truly an extended naked eye object with a really long extended shape. In the scope, a few of us enjoyed the traditional view of the dust lanes (more an absence of light) that emphasized the 3D effect of the galaxy's tilt.

So that meant M33, which was clear in the finder deserved a visit in the 20". Invited Barton over, who put his past experience with his 4 and 8" to good use. When he started to study it at 255 power in the 20" he easily noted many of the H2 regions.

Friday night started out worrisome, but the lingering clouds retreated revealing all of the sky by mid-evening. It got real transparent later between 1:30 - 3:00 am. this made easy the direct vision prey of my second highlight - NGC 7335 & 7340. two 14.4 satellite galaxies to 7331 in Pegasus. They were easy to locate, using Rajiv Gupta's photo on p. 269 of the Oct.,'98 RASC Journal. This was a fun night, to do what star parties are good for - sharing the sky with others who enjoy observing from dark skies. It was fun to share the views with a 20" with some newer observers who were used to their 4 and 8 inch instruments.

A fellow from Saskatoon brought his father over to also look at the Veil with the OIII. It's a little frightening at first these two dark forms almost 7 feet tall loom up from the dark to your scope. And they didn't need the ladder for Cygnus near zenith. They were from Saskatoon and came by a few times. They, and others enjoyed the filamentary structure in the Veil. The Crescent nebula also showed very well.

Another observer from Prince Albert, then a 3-week new observer from Calgary (with a trailer about a block long). Was kinda fun sharing a few showcases with others. Was good to chat with Dennis Fell, one of our more serious refractor aficionados, and previous member, who now observes near Wetaskiwin.

Saturday the skies darkened nicely, after the 2 good speakers, door prizes,and weiner roast. Wanted some practice in star hopping and invested more time than I'll admit learning the way for the 1st time to G1, the brightest globular cluster in the Andromeda galaxy. at 13.7 mag., It's not that it's a difficult object itself, But the idea that it belongs to another galaxy is cool, at least for me. Before the hunt you could Google lots of photos and finder charts. Its in a triangle asterism. But it was also the largest v. slightly fuzzy member of a tiny triangle with 2 foreground stars. http://astro.neutral.org/images/20050902_m31_g1.jpg

When the seeing steadied for a moment, Barton and I could resolve them at 330 power. This underscored just how much tracking which I don't yet have, on my push-and-nudge scope would improve observing.

A satisfying fun weekend that reaffirmed why this is such a rewarding, life-long hobby. Thanks Warren.

Larry Wood writes:

ASP and NPS in two consecutive weekends relates to 6 1/2 nights of observing with only 2 nights of early to bed. What a wonderful time to spend time under the stars. I slept for 3 days straight when I finally got home.

A lot of the time at the eyepiece was spent chasing mostly faint objects - a number of them in Aquila, page 251 in Uranomeria mostly. On a couple of previous nights Denis and I had tried for the Planetary Neb PK 39-2.1 spending a fair amount of time at the ASP to no avail, so printed out a detailed chart to see if I could locate it while at BNL. The FOV was quite easy to pin point but the PN was something else After several minutes under the dark cloth a faint nebulous speck was seen in the correct position. Upon inserting the O111 filter the nearby mag 13.7 star almost disappeared but the faint (slightly non-stellar) speck was still there. I spent a couple of hours using various means to tease out more info on it. What a blast. It turns out the PN is mag 14.5 and 8" in diameter ("Planetary Nebulae" by Hynes). Another couple of less than bright NGCs that I viewed were NGC6749 and NGC6852 plus many more.

Hey, I did look at some bright stuff, i.e.: M2 - which I hadn't seen for years, a dust clouded Mars, Jupiter - too low, Neptune - to late to see Triton, Uranus - believe I saw two Moons, a good

number of fairly bright meteors, Helix nebula, 5 or 6 more PKs, and a very good look at M109. And yes one never tires of watching the Winter Hexagon rise in the east as an end to a glorious night of observing.

Denis Boucher had to work so was only able to make 3 nights at the ASP as did Doug Billie. Doug joined me at the NPS and was busy knocking off many of the "Finest NGC" list and hung on until quite late on most nights. He showed up at the ASP one day later than I did so his average was almost 100%, only losing the last part of one night to cloud.

At BNL Alister dropped by on Saturday night around midnight and we viewed the Gegenschein just to the upper left of the unaided view, which I had previously observed, of Uranus.

Dennis Fell had this to say.

I thoroughly enjoyed this event, as I don't get out too often to do any deep sky observing, it was a treat to find a lot of objects I hadn't yet observed with my 4" apo. Armed with an OIII filter and a new 7mm Nagler I was able to see a great many globulars, planetaries and most of my favorites such as the Veil and the crescent nebula. Not to mention hunting down Uranus and Neptune and piling on the magnification. The event was well organized and the camping was great if rudimentary. I greatly enjoyed the socialization with some I hadn't seen for a long while as well as talking to a few beginners, I look forward to next year's party. Kudos to Warren for organizing a fun event with interesting speakers as well as the unique method of summoning participants to the sessions.

Bruce McCurdy Wrote the following:

Thanks and congratulations to Warren for organizing an outstanding star party, and for persevering through three years of uncooperative weather. Finally in Year 4 the skies were superb for at least three nights. I was able to take in two of them and enjoyed myself immensely.

Had a great time "parasiting" at various scopes, visiting lots of friendly voices in the dark, many of them familar but some new ones as well. Particularly memorable was an extended stay on Saturday evening at Dan Kulak's incredible 20x120 binoculars, essentially a pair of first-rate 4.7-inch refractors with a 3° field. They put a whole new perspective on (many! thanks again, Dan) familiar objects, the low power views showing those objects in what seemed like 3D, embedded in their star fields. As expected the view of some of the extended objects -- Andromeda Galaxy, Pleiades, Double Cluster, the Veil -- was fantastic, but I was also blown away by the views of M81/82, M13, and the Dumbbell; and the Ring was not only readily visible (a rare experience in any binocular), but both Dan and I were saying we could just resolve a tiny disc with a hole in the middle... amazing!

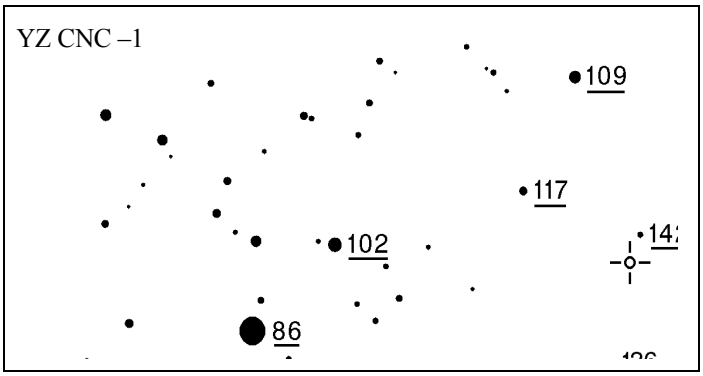
Managed to get an hour or two of meteor counting each night, and saw plenty more between times. There was a surprising amount of activity; just a few minor showers in September, but sporadic rates are pretty much at their max for the year just now.

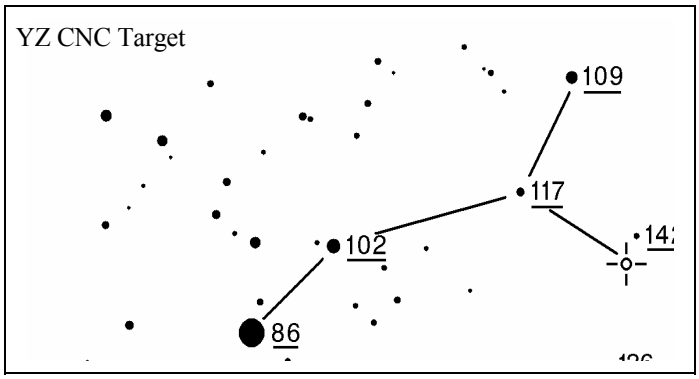
Between meteor observing and general gawking, I spent much of my weekend just gazing with my unaided eyes, drinking in as many photons as possible. I had the club's SQM and was consistently getting readings of 21.6 on both nights. For sure the sky was a couple of tenths better than Blackfoot. By Sunday every time I closed my eyes -- which was often, if not quite often enough! -- I could "see" the afterimage of the summer Milky Way emblazoned on my retina. Oh my! what a sight that is!

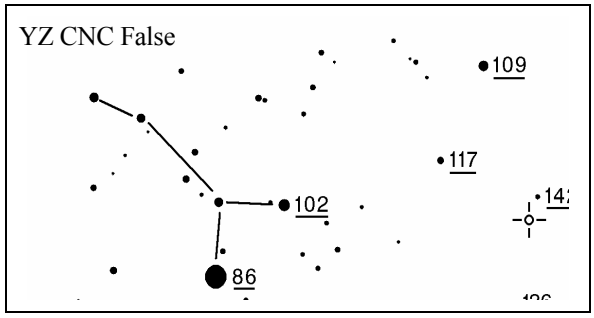
Finally **Alister ling** gave me this report:

while observing Friday night, well at 5:30 Saturday morning... I discovered two problems with the field of the cataclysmic star YZ Cancri. Not only was the variable almost 2 magnitudes brighter than its previous maxima, but the 86 star was fainter than the nearby 102 star! After 2 tries to reconfirm the field, it had to be. However, I've misidentified a star before at the end of a long observing session, so I didn't let it get to my head. I reobserved it earlier Saturday night and found my error.

YZCNC-1 is the segment of the chart. YZCNC-target is the pattern I was looking for. YZCNC-false is the pattern that caught my eye: Same pattern and size, just slightly displaced and slightly different orientation. And when you're hoping to see a cataclysmic shining brightly, it's all too easy to assume what you see must be what you're looking for!







The next night, checking much more carefully, I saw how I got misled. It's amazing how often elsewhere the pattern you're looking for is duplicated nearby. The universe is unfolding as it should!

Wow!! Thanks everyone for sending in your observations. I really do enjoy reading them and I know other observers in the club do as well. Keep it up.

Thank you

The Planets *by Murray Paulson*

Mercury was at Greatest Eastern elongation in the evening sky on September 29th, and is now headed back toward the sun. The fall ecliptic will maintain Mercury in close proximity with the western horizon for the decent back to an inferior conjunction the sun on October 23. If you want to get a view of Mercury as it expands to a crescent, you will have to do it with either a goto scope or with coordinates in hand and an equatorial with setting circles. It will fade fast from Magnitude 0.4 at the beginning of the month to magnitude 1.5 by the 15th. If you miss it, you get a second chance in the morning sky a few weeks after inferior conjunction. Mercury will swing out with amazing speed into the morning sky and by November 8th, it will be at greatest Western elongation where it will shine at magnitude –0.5. In the eyepiece it will show a 7" half disk. How soon can you spot it in the morning sky before this date?

At the Northern Prairie Star Fest, we could just barely see the shadows **Venus** cast in the wee hours of the morning. At Magnitude –4.5, it is just amazing! Venus will start it's gradual decent from this peak of brightness in mid October and will shine at magnitude –4.3 by the first week of November. At the beginning of this month, Venus presents a fat 33" crescent in the eyepiece. On October 28th, Venus will be at Greatest Eastern elongation where it will sit 46.5 degrees from the sun and in the eyepiece will present you with a 24.1" half disk. It shines at magnitude –4.4 now and by the first weeks of November will decline to magnitude –4.3 as it crosses into the southern hemisphere.

At the beginning of October, **Mars** rises at 10:30 pm and shines at magnitude 0.0. In the eyepiece you will see it's 9.8" gibbous disk, and note that it is no longer small. You can actually see details on it, polar hoods, Maria and limb hazes. Cool, but you have to wait up till some time after midnight! By the first weeks of November, Mars rises at 8:30 pm, and now has grown to 13" in diameter. That gibbous phase is fattening up and it shines at magnitude –0.8. You can now get a good view without having to wait up till the morning hours. Because of Mars's position on the top of the ecliptic in Gemini, it is way up in the sky when it crosses the meridian. Here in Edmonton it crests 60 at degrees altitude! By the way, this happens at 5 am! Some of the things that have been seen on Mars recently in amateur photographs are the shield volcanoes and some dust activity. Polar hoods and limb hazes are also quite visible. It is time to get out those color filters and clean them off for the coming apparition. One other naked eye treat is to watch the red planet above Betelgeuse and Aslderbaran.

Jupiter sits in Scorpius, 65 degrees from the sun, but in the glare of the early evening sky. Once again, its the fall ecliptic that sinks rapidly south at this time of year. Jupiter sets before it gets completely dark, so Jupiter is lost for this season.

Saturn has risen up in the morning sky and passes 3 degrees north of Venus on the morning of the 13th of October. Saturn is brighter than the similarly colored Regulus at magnitude 0.7. In the eyepiece it presents a 17" disk and a much flatter ring system than we witnessed last year. The rings are tilted at an 8 degree angle and have a 36.3" extent. Saturn will remain in Leo for the duration of this apparition.

Uranus was at opposition in early September, so it still is a fine object to hunt down on a fall evening. I have made a few attempts to spot the moons of Uranus, but my 10" aperture without an occulting bar in the eyepiece is not enough. I would be interested in any reports of Uranian moon sightings in moderate telescope sizes. Uranus sits near Phi Aquarius, an M class star, and shines at magnitude 5.7. In the eyepiece Uranus will show you a 3.6" blue-green disk. If the seeing is good, try to up the magnification to get a good view of it. If you are chasing the moons, you need to use magnifications in the 300 plus range. On October 22, the Moon and Uranus pass 25 minutes of arc apart at 7 pm local time. The moon will be quite gibbous at the time and magnitude –12.5 quite a magnitude difference with Uranus. Check the handbook to find a chart of the Phi Aquarius region showing the placement of Uranus.

Neptune is still reasonably well placed to hunt down in the evening sky. I recommend that you find a chart from Astronomy magazine or Sky and telescope to find it. Neptune shines at magnitude 7.8 and has a diameter of 2.30 arc seconds. It will show a greenish disk in the eyepiece at above 200 power. It's Moon Triton is visible in 10" and larger scopes, but you need to make up a finder chart with your favorite astronomical software.

Till next month, clear skies.

Dark Sky Preserve News *by Sherrilyn Jahrig & Richard Huziak*

The first anniversary celebration of the signing of the Beaver Hills Dark-Sky Preserve declaration was held in Central Alberta at Elk Island National Park, on September 2, 2007. Whereas the **RASC Edmonton Centre** did the majority of organizing for last year's inaugural event: **'Many Cultures, One Sky'**; Parks Canada staff did most of the organizing for 2007. The event was well attended with several hundred guests, a lower key event compared to last year's gate count of over 2,500!

Alberta Parks participated this year with a constellation/star-lore presentation. In January 2008, Alberta Parks will be introducing a BHDSP Provincial Initiative in Astronomy and Dark Sky Preservation Education available to elementary schools. '**D.S.I.: Dark Sky Investigators**' includes a theatre performance, classroom component and field trip centered on astronomy and preservation of the nocturnal environment.

On the national front**, Dow Community Grants Program** and **Elk Island National Park** are partnering to enhance the Beaver Hills Dark Sky Preserve Designation through interpretive and outreach education programs. The project will provide students and teachers in Elk Island School District with resources to learn more about the Dark Sky Preserve. As well, guides and interpretive panels will be created for park visitors to increase awareness of the Dark Sky Preserve and the role that individuals play in energy conservation and responsible lighting practices.

They have already purchased telescopes and have a good start on an astronomy library.

The anniversary celebration started at 4:00 pm with an open-air ceremony chaired by Dr. Douglas P. Hube. Doug and Laurie Guyote, Parks Canada, unveiled the beautiful painting 'Dark **Skies'** by Lewis Lavoie, created at the declaration event. Sherrilyn Jahrig of Edmonton Centre was awarded a print for her dedication to the DSP team's success. Public Education Director, Orla Aaquist, provided live music including an original song, **'The Stars Belong to Everyone'**, dedicated to the BHDSP.

At 4:45 pm, presentations moved into the Astotin Theatre where talks followed until 9:30pm. Speakers included Doug Hube: *A Celestial Embrace: Sun, Earth and Aurora*; Parks Interpreter Matt Davis: *Scotobiology*; Rick Huziak: *Dark-Sky Preserves*; David Roles: *The Grand Tour of the Planets*; Richard Vanderberg: *Dark Sky Objects*; Bruce McCurdy: *Constellations from the Top Down*; and Massimo Torri: *Moon Walk*.

As the presentations held the fort, outdoor children's activities and solar viewing was available. Paul and Sherry Campbell, Murray and Joanne Paulson, Greg and Lindsay Brundell, Mike Noble, and a dozen others hosted telescopes. As dusk set in, we all got our scopes set up and eagerly awaited the clearing of a promising sky, but alas, haze and cirrus continued to thicken, and by the time the moon rose around midnight, all hope of seeing anything specific to a dark site was lost. We took consolation in the success of the great indoor programs. We showed our telescopes and the usual brighter objects, which were exciting to new observers. We were all a bit sad that we didn't get to see the moon's passage through the Pleiades – but it looked great on our computer programs!

It was awesome to watch the Parks presentations and to realize that staff is funded to produce astronomy programming, research such things as Scotobiology, buy telescopes and books, and raise public awareness about dark sky preservation. The ripple effect is enormous already…and so soon! Congratulations need to go to the Beaver Hills DSP curators and the Edmonton RASC volunteers for a job well-done!

Telescope for Sale

One 10 inch F8 DOB (truss) telescope. Homemade with fantastic optics from Barry Arnold. It is finished in beautiful wood that was stained and varathaned by myself and Dennis Boucher did all the wood work. It was also featured in the May 1997 issue of StarDust. Comes complete with a poncet. Yes this scope can track the sky. It also has a top of the line JMI focuser(NGF 2 inch). A must see item.
$1000.00 OBO. Reason for selling: Moving up to a 16 inch telescope. Larry - Days: 447-8834 Evenings: 267-7178

CALL FOR PROPOSALS

Once again the Edmonton Centre is calling for Expenditure Proposals. The deadline for all proposals will be Friday 19 October. If you have a passion for astronomy and related sciences ,and you would like to see programs, services, or activities implemented in your Centre, here is your opportunity to make your ideas known. Proposals should have the following characteristics:

- **Astronomy/Space Science Focus:** Astronomy/space science must be the primary area of focus used to promote science, mathematics and/or technology education/public outreach. Programs that utilize results/data from visual observing astrophotography or space science research are strongly encouraged.

- **Innovation:** Innovative, creative method(s) of bringing current astronomy/space science information to students, teachers and the public. Submitted proposals should clearly demonstrate the innovative, creative method(s) and how they would improve current educational or public understanding of astronomy and space science.

Procedure:

- Expenditure proposals may be made by any member. That person should be prepared to speak to the proposal at Council, if so requested.

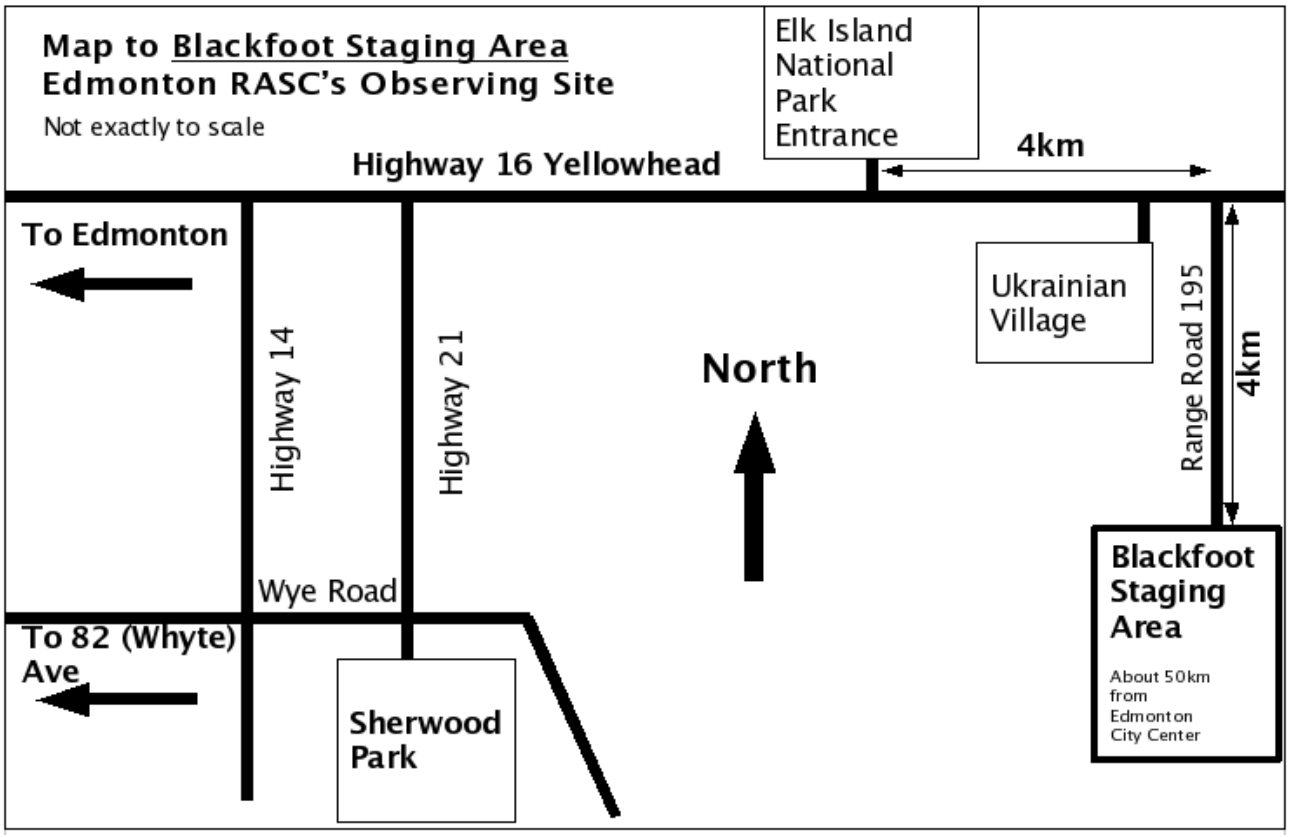
- Proposals should be submitted to the President who will then pass it along to the Finance or Expenditure Committee for review to ensure the Proposal is complete. The committee may request additional information.

- The Treasurer will be informed of all proposals and will be ready at the time of discussion to address the issue of availability of funds.

- Council will determine whether the expenditure is more appropriate from casino or from regular funds.

- The normal practice has been to receive proposals between January and the end of March each year for consideration at the April Council meeting. Recommendations from Council are posted in Stardust for circulation at the May meeting for a vote of the General Membership at the June meeting. Proposals may also be considered at other times of the year.

You can find the form here: **http://www.edmontonrasc.com/download/Expenditure_Form.pdf**


Map to Blackfoot Staging Area
Edmonton RASC's Observing Site
Not exactly to scale
Elk Island National Park Entrance
4km
Highway 16 Yellowhead
To Edmonton
Highway 14
Highway 21
North
Ukrainian Village
Range Road 195
4km
Wye Road
To 82 (Whyte) Ave
Sherwood Park
Blackfoot Staging Area
About 50km from Edmonton City Center